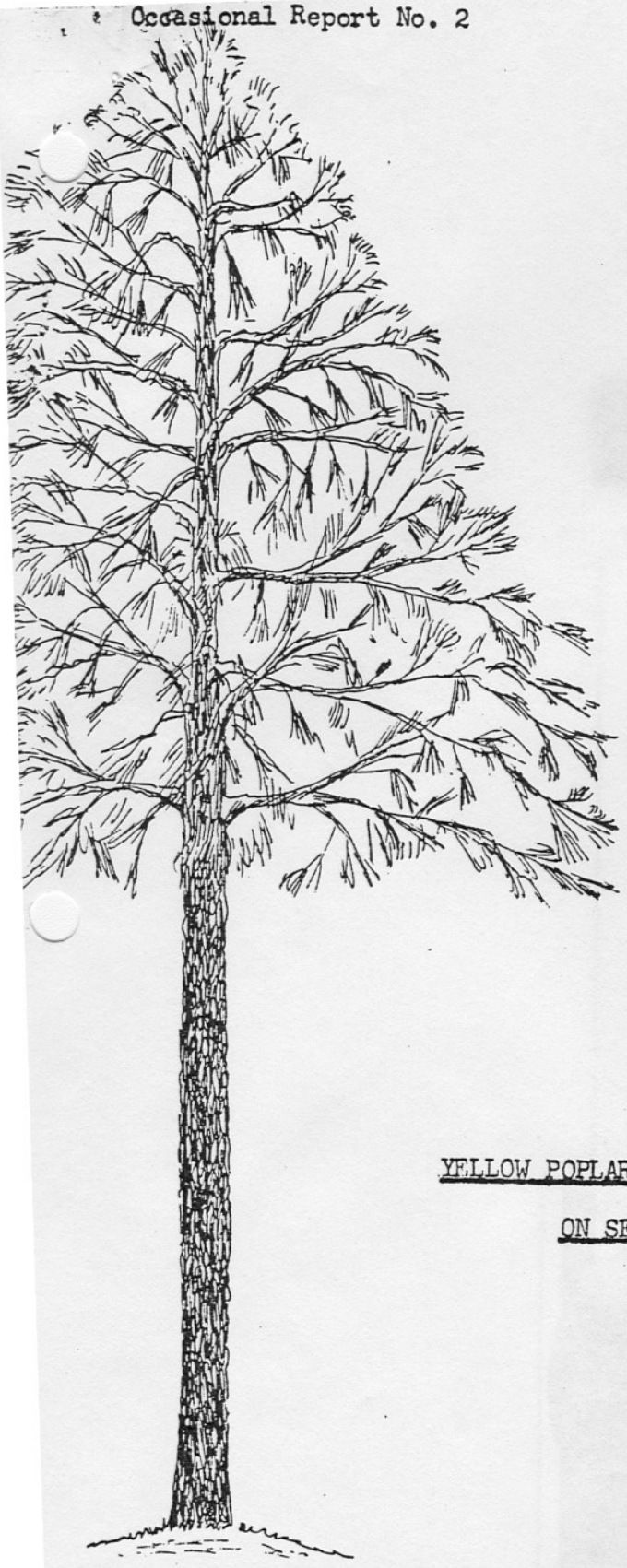
Occasional Report No. 2

November 1955



YELLOW POPLAR GROWTH AND YIELD DATA ON SELECTED STANDS IN VIRGINIA

KEEP VIRGINIA GREEN

PREVENT FOREST FIRES

DIVISION OF FORESTRY
DEPARTMENT OF CONSERVATION AND DEVELOPMENT

YELLOW POPLAR GROWTH AND YIELD DATA ON SELECTED STANDS IN VIRGINIA

Yellow poplar has long been recognized as one of Virginia's most valuable forest trees. As a tree it characteristically offers good form and attains a large size under favorable growing conditions. It is a tree of many uses, the most common uses in Virginia being lumber, veneer and pulpwood.

The natural range of yellow poplar in Virginia covers the entire State with the region of best growth confined mostly to the mountains. Yellow poplar is very adaptable and once it becomes established, can make satisfactory growth on any moist, well drained soil of good depth.

Certain characteristics of yellow poplar are well known -- such as its rapid growth after once becoming established on an area, that full sunlight is needed for proper growth, the fact that it is a prolific seeder, and that it is highly resistant to disease and injury. Fire and grazing are the worst enemies of poplar, and both of these can be controlled by man. Because of better fire protection in Virginia in recent years, foresters have observed that second-growth poplar now is of better quality and contains less defect.

On the other hand, there are some characteristics of yellow poplar of which little is known at present. For example, what is the best plan of management for it? Should yellow poplar be thinned periodically; if so, how much should be cut and how often? If too heavily cut, sprout growth may appear on the stems of the uncut trees which could reduce lumber and veneer values. If not thinned, growth may be retarded and the stand may stagnate. Little is also known about the planting of yellow poplar seedlings so that a satisfactory survival rate can be obtained. In 1953 the Tennessee Valley Authority made an appraisal of two-year old yellow poplar plantations in the Tennessee Valley and found the average

survival of plantations in the Valley to be 27 percent. This appraisal included six states. Virginia had an average yellow poplar plantation survival of 46 percent.

How to successfully plant yellow poplar offers perhaps the most urgent immediate problem concerning poplar in Virginia. Survival to date on yellow poplar planted in Virginia has been low. The exact reason for this low survival is unknown but forest experiment stations are concerned with this problem and are reported doing research on it. It is the intention of the Virginia Division of Forestry to continue offering yellow poplar seedlings for sale in the coming planting seasons, but to urge they be planted only on the most favorable locations. The Division plans to study survival of some selected poplar plantings.

Because of the importance of yellow poplar to the forest industries in Virginia and in order to obtain more definite information concerning stand volume and growth of yellow poplar in Virginia, field data on some selected poplar stands were gathered by the Virginia Division of Forestry in 1955. An effort was made to include in the field work measurements of existing plantings of yellow poplar in addition to natural stands. As a result, there is included in the summary which follows data taken from measuring two yellow poplar plantings. One of these plantings is 15 years old and is found in Loudoun County, and the other is a 24-year old planting located in Franklin County. These two yellow poplar plantings were the only two older plantings of any consequence found as a result of the field work. Many more natural stands than those which follow in the summary could have been measured but it is felt that those selected will suffice for the purpose intended.

The following is a summary of the yellow poplar plantings and natural stands measured:

SUMMARY OF MEASURED YELLOW POPLAR STANDS

No.	County	Age (Yrs.)	PER ACRE No. Trees	Volume (Cu.Ft.)	Volume (*Cords)	Volume (**Bd.Ft.)	Avg. Annual Volume Growth (Cords)	Avg. Annual Volume Growth (Bd.Ft.)	Basal Area (Sq.Ft.)
1	Loudoun	15	688	907	10.1		0.67		74
2	Franklin	24	750	2,848	31.6		1.32		139
3	Franklin	29	380	2,502	27.8		0.96		99
4	Albemarle	30	410	2,333	25.9		0.86		108
5	Botetourt	32	255 155	3,193	35.5	15,645	1.11	489	119
6	Albemarle	33	512 187.5	3,806	42.3	15,473	1.28	469	152
7	Pittsylvania	33	245 185	3,922	43.6	15,110	1.32	458	132
8	Hanover	34	500 170	2,839	31.5	10,335	0.93	304	130
9	Washington	35	280 150	2,302	25.6	7,000	0.73	200	97
10	Bedford	39	245 200	4,543	50.5	25,025	1.30	642	162
11	Bedford	40	165 105	3,166	35.2	18,075	0.88	452	107
12	Orange	44	280 155	4,840	53.7	27,380	1.22	622	157
13	Clarke	48	247 157.5	4,869	54.1	26,108	1.13	544	182
14	Bedford	50	305 150	2,853	31.7	13,345	0.63	267	111
	Average	34.7	376	3,209	35.6		1.02		126
	Average Nos. 5 through 14		161.5			17,350		445	

Nos. 1 and 2 are planted stands and all the rest are natural stands. No. 13 has been marked and is in the process of being cut at time of this writing. Approximately 10,000 board feet per acre were marked, leaving a residual stand of approximately 16,000 board feet per acre.

*Standard cord of 128 cu.ft. Based on table 14, Technical Bulletin #356, U.S.D.A.
**International Rule (1/8-inch-kerf). Based on table 16, Technical Bulletin #356, U.S.D.A.

Data gathered by:

Virginia Division of Forestry

November 10, 1955